We claim:

1. An apparatus for authenticating memory space of an authorized accessory of a device, the apparatus comprising

an integrated circuit which is configured to define two secret keys K_1 and K_2, a random function which returns a random number R and a first parameter being a function of the random number R using the secret key K_1 of the integrated circuit and to define a test function operable on data using the secret key K_2 of the integrated circuit to return a one or a zero; and

a control system which is configured to call the random function of the integrated circuit, to call a read function defined by the accessory using a function of R with the secret key K_1 stored by the accessory as a second parameter, such that the accessory returns a third parameter from the memory space which is a function of R using the secret key K_2 stored by the accessory if the first and second parameters are equivalent, to call the test function using a function of R with the secret key K2 of the integrated circuit as a fourth parameter, the integrated circuit being configured so that the test function returns a one if the third and fourth parameters are equivalent.

2. An apparatus as claimed in claim 1, in which the random, test and read functions are one-way functions.

3. An apparatus as claimed in claim 1, in which the integrated circuit is configured to advance R to next in sequence with each invocation of the random number generator.

4. An apparatus as claimed in claim 3, in which the integrated circuit includes a linear feedback shift register which defines the random number generator.

5. A method of authenticating memory space of an authorized accessory of a device, the method comprising the steps of:

storing secret keys, K1 and K2, in an integrated circuit of the device and in the memory space of the accessory;

generating a random number R and a first parameter being a function of R using the key K_1 of the integrated circuit of the device;

calling a read function defined by the accessory using a second parameter being a function of R using the key K_1 of the accessory;

returning a third parameter, being a function of R using the key K_2 of the accessory if the first and second parameters are equivalent;

calling a test function of the integrated circuit using a fourth parameter being a function of R using the key K_2 of the integrated circuit device; and

returning a one if the third and fourth parameters are equivalent.